

Claims

1 A grid of grid points is constructed from the following four layers:

A membrane keyboard (1) with a regular grid of press-sensitive areas (3), which is opaque except for a transparent circular area for each of the press-sensitive areas;
a layer of a uniform, translucent material (4) below the membrane keyboard;
a separation layer of opaque material (5) below the translucent layer, with transparent circular holes (6) matching the transparent circular areas in the membrane keyboard, which have reflecting or very light walls;
a PCB (7) below the separation layer, on which two or more light sources (8) are mounted around the center of each hole in the separation layer, and also carries the circuitry to drive them;

where all the layers are held together, and the thickness of the separation layer is such that the distance of the light sources from the bottom of the translucent layer is more than a quarter of the diameter of the hole in the separation layer;
and both the membrane keyboard and the control of the light sources are connected to a CPU (9) which uses them to manage various games and puzzles, in which the players play by pressing the press-sensitive areas, and the CPU responds by changing the illumination state of the sources of light.

2 A grid as described in claim 1, where the press-sensitive area is more than 1.5 times larger than the area of the hole in the separation layer.

3 A grid as described in any preceding claim, where the layer of translucent material is made of High Impact Polystyrene.

4 A grid as described in any preceding claim, where the membrane keyboard has a dome above the surface for each grid point.

5 A grid as described in any preceding claim, where in one or more games the state of illumination changes periodically even if the players do not press any point.

6 A grid as described in any preceding claim, where in one or more of the games in each period of time the CPU checks for each point how many of the eight points around it are illuminated, and accordingly decides if the point is going to be illuminated in the next period, the player(s) can also affect the illumination state of a point by pressing it, and the task of the player(s) is to keep some points illuminated as long as possible, or to cause all the points to be switched off as fast as possible.

7 A grid as described in any preceding claim, where in one or more of the games the CPU illuminates an additional point in each period of time, and the player(s) need to press the last point that became illuminated before the next point becomes illuminated.

- 8 A grid as described in any preceding claim, where in one or more of the games the CPU illuminates a pattern of points and then moves it in each period of time by switching on one point near one of the illuminated points and switching off one of the illuminated points, and the players need to press one of the points while it is illuminated.
- 9 A grid as described in any preceding claim, where one of the games is the game GO.
- 10 A grid as described in any preceding claim, in which one of the game has these rules:
Each player in his turn switches on a point of his colour by pressing it;
A player is not allowed to press in two successive turns two points that are too close to each other, and the distance that defines what is too close can be set by the players;
The winner is the player that when all the points are switched on has the larger number of straight lines of four points of his colour.